

# Intracranial metastasis from carcinoma of the cervix: A rare case report

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## ABSTRACT

Brain metastasis from cervical carcinoma is very rare and have poor prognosis. We report an interesting and rare case of cervical carcinoma who developed brain metastasis following total hysterectomy with bilateral salpingo-oophorectomy and radiotherapy, within 6 months of primary diagnosis. Since patient prognosis is very poor, oncology physicians should anticipate the presence of this condition in order to give prompt and comprehensive treatment.

**Key words:** Brain, cervical carcinoma, metastasis

## INTRODUCTION

Cervical cancer is the second most common cause of cancer-related mortality in developing countries. It metastasizes to the retroperitoneal lymph nodes because of rich lymphatic network of cervix. Distant organs are reached by hematogenous dissemination. Most commonly affected distant organs are lungs, liver and bones. Brain metastasis from cervical cancer is extremely rare and is seen late in the course of disease and has poor prognosis.<sup>[1]</sup> There are very few reports about brain metastasis and its prognosis are available in the literature. We report a case of a woman with squamous cell carcinoma who developed brain metastasis, while on postoperative radiotherapy within 6 months.

## CASE REPORT

A 65-year-old female patient presented with pain left side head with numbness in right upper arm gradually increasing in intensity. Patient had a history of cervical carcinoma for which total hysterectomy with bilateral

salpingo-oophorectomy was done 6 months back. She was on radiotherapy at cancer hospital.

Magnetic resonance imaging revealed a space occupying lesion in left parietal region with extensive edema causing mass effect over left lateral ventricle and midline shift toward right side with probable diagnosis of glioma [Figure 1].

Gross biopsy specimen received was two soft tissue pieces measuring 6 × 4 × 1.5 cm and 4 × 2 × 1 cm, gray-white to brown in color and soft-friable in consistency with areas of necrosis.

Histopathological examination showed brain tissue infiltrated with anaplastic squamous epithelial cells disposed in large sheets and groups showing keratinization at places. Many bizarre cells, mitoses with wide areas of necrosis were also seen. A diagnosis of metastatic squamous cell carcinoma of well to moderately differentiated type was made [Figures 2 and 3].

## DISCUSSION

Gynecological malignancies have low incidence of metastasis to the brain. The most common tumor that metastasizes to the brain is choriocarcinoma (35%).<sup>[2]</sup> Brain metastasis from cervical cancer is extremely rare. However, increased incidence of brain metastasis has been reported because of improved treatment of primary lesion and prolonged survival.<sup>[3]</sup> More than 80% of the brain metastasis are located in the supratentorial region of brain.<sup>[1]</sup>

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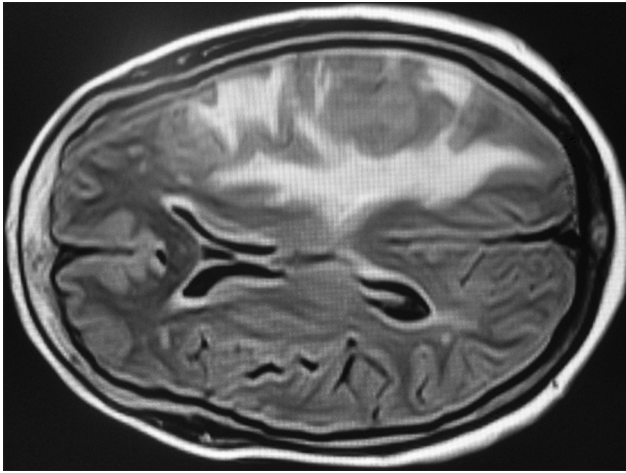
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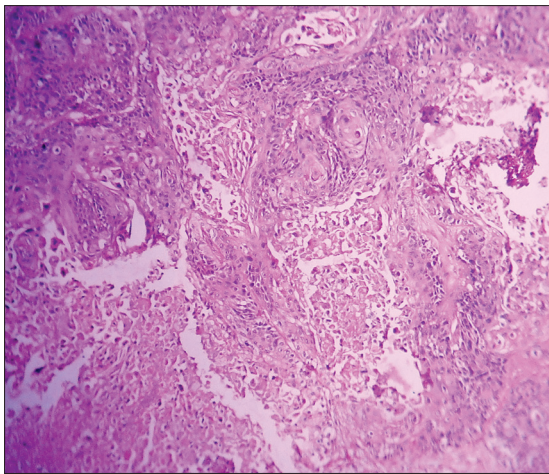
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10.4103/2278-0513.142711

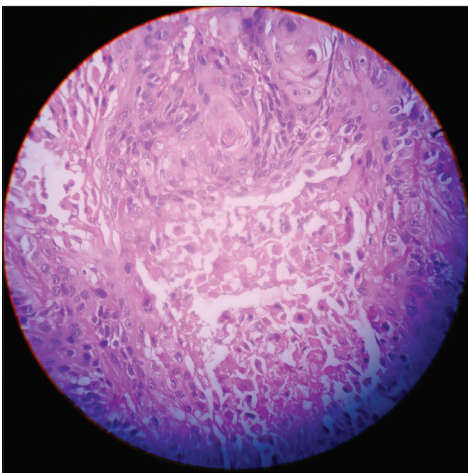
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**Figure 1:** Magnetic resonance imaging slice shows a space occupying lesion in left parietal region with edema causing mass effect over left lateral ventricle and midline shift



**Figure 2:** Low power view; shows anaplastic squamous epithelial cells disposed in large sheets and groups showing keratinization and areas of necrosis (H and E)



**Figure 3:** High power view; shows well differentiated malignant squamous cells and keratin pearls (H and E)

Henriksen first reported brain metastasis from cervical carcinoma in an autopsy study in 1949.<sup>[4]</sup> Incidence of

brain metastasis has been reported to be about 0.5-1.2% in various clinical studies. The time interval of metastases after diagnosis of carcinoma of cervix is reported from 8 weeks to 8 years (longest), with the median time for manifestation being 18 months.<sup>[5,6]</sup> The reported median age at the time of central nervous system metastasis diagnosis was 52 years.<sup>[7]</sup>

Brain metastases are more frequently seen with poorly differentiated cervical tumors.<sup>[1]</sup> In our case, primary tumor had well to moderately differentiated histological type of squamous cell carcinoma.

The route of spread to the brain from cervical cancer is hematogenous. However, the presence of intravascular tumor cells in cerebral circulation does not always lead to brain metastasis. The development of brain metastasis depends on the host immune response, tissue neovascularization, the number of tumor emboli and characteristics of the tumor.<sup>[8]</sup>

Clinical presentation depends on site of the lesion. Headache, hemiparesis, visual disturbances etc., are common symptoms and usually are of sudden onset.

Treatment of brain metastasis involves radiation therapy, surgery, or both depending on the clinical situation. In general, surgical excision is done in cases with solitary lesion. Although cases with multiple or inoperable lesions are usually treated with palliative whole-brain radiotherapy.<sup>[1]</sup> Overall prognosis of cervical cancer with brain metastasis is very poor. However, long-term disease-free survival has been achieved by surgical resection of a solitary brain metastasis with postoperative whole-brain radiation.<sup>[9]</sup>

## CONCLUSION

Intracranial metastases in patients with cervical carcinoma are rare, but may occur because survival from the primary tumor is prolonged by the availability of improved treatment facilities.

Oncology physicians should keep high degree of suspicion about metastasis if patients develop symptoms. They should be subjected to thorough investigations without delay. A solitary resectable brain metastasis can be successfully treated with surgery or stereotactic radiosurgery with or without whole-brain radiotherapy. From a review of the literature, the optimal management of cervical carcinoma with brain metastases is radiotherapy.

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**Cite this article as:** Aggarwal T, Sawke N, Sawke G. Intracranial metastasis from carcinoma of the cervix: A rare case report. *Clin Cancer Investig J* 2014;3:573-5.

**Source of Support:** Nil, **Conflict of Interest:** None declared.